CLAIMS TO INVENTION:

1. An automatic hand-supportable laser scanning bar code reading system, wherein two distinct modes of laser scanning supported bar code reading operation are provided: a first, omni-directional bar code reading mode, wherein a visible omni-directional laser scanning pattern produces multiple laser scanning lines having substantially uniform spatial and temporal intensity characteristics in any given scanning plane for the purpose of scanning and reading bar code symbols in an either a hands-on or hands-free manner; and a second, uni-directional bar code reading mode, wherein against a visible stroboscopically-pulsed omni-directional laser scanning pattern, there is produced a single laser scanning line having substantially uniform spatial and temporal intensity characteristics in any given scanning plane for the purpose of scanning and reading bar code symbols in either a hands-on or hands-free manner.

2. An automatic hand-supportable laser scanning bar code reading system, wherein different methods can be used to generated such different types of omni-directional laser scanning patterns in respective bar code reading modes of operation.

3. An automatic hand-supportable laser scanning bar code reading system, wherein both (i) the visible omni-directional scanning pattern of substantially uniform spatial and temporal intensity, and (ii) the visible stroboscopically-pulsed omni-directional laser scanning pattern having a single line laser scanning line of substantially uniform spatial and temporal intensity, are generated in respective modes of operation by electronically controlling a single laser scanning beam and its photo-reception.

4. An automatically-activated bar code symbol reading device comprising a bar code symbol reading mechanism contained within a hand-supportable housing that is capable of operating in two different bar code reading modes: in a first bar code reading mode, the bar code symbol reading mechanism automatically generates an visible omni-directional visible laser scanning pattern of substantially uniform spatial and temporal intensity for repeatedly reading one or more bar code symbols on an object during a bar code symbol reading cycle, and automatically generating a new symbol character data string in response to each bar code symbol read thereby;

in a second bar code reading mode, the bar code symbol reading mechanism automatically generates a visible stroboscopically-pulsed omni-directional laser scanning pattern having a single laser scanning line of substantially uniform spatial and temporal intensity for repeatedly reading one or more bar code symbols on an object during a bar code symbol reading cycle, and automatically generating a new symbol character data string in response to each bar code symbol read thereby.

5. An automatically-activated laser scanning bar code symbol reading device, wherein the bar code symbol reading mechanism automatically enters the first "omni-directional" reading mode when the hand-supportable housing is placed in a support stand (that supports the housing), and automatically enters the second "single-line" reading mode when the hand-supportable housing is removed from the support stand., or alternatively, when removed from the support stand and the user depresses the data activation switch/trigger switch mounted external to the hand-supportable housing.

6. An automatically-activated bar code symbol reading device comprising a manually-actuatable data transmission control (activation) switch that is capable of producing a control activation signal that enables communication of symbol character data (produced by the bar code symbol reading system) to a host system in an automatic manner.

7. An automatically-activated bar code symbol reading device comprising a manually-actuatable data transmission control (activation) switch that is capable of serving dual purposes, namely: producing a control activation signal that enables communication of symbol character data (produced by the bar code symbol reading system) to a host system in an automatic manner, as well as enabling the manually-selection of the bar code mode reading modes supported by the system, in response to preprogrammed conditions determined by an automatic IR-enabled object detection subsystem embodied within the system.

8. An automatically-activated laser scanning bar code symbol reading device, wherein the control subsystem thereof enables the transmission of produced symbol character data to the associated host system or data storage device, only when the data transmission control switch

provided on the exterior of the scanner housing is manually actuated by the user during a bar code symbol reading cycle.

9. An automatically-activated laser scanning bar code symbol reading device, wherein the bar code symbol reading cycle is visually signaled to the user by a bar code symbol reading state indicator provided on the scanner housing.

10. An automatically-activated bar code symbol reading device which comprises: (i) a hand-supportable housing, (ii) a preprogrammed set of operational states wherethrough the device automatically passes during each bar code symbol reading operation, without requiring manual actuation of a switch, trigger or like component within the system, and (iii) a preprogrammed symbol character data transmission state of operation into which the device is automatically induced in response to manual-actuation of a data transmission control switch provided on the exterior of the housing of the bar code symbol reader.

11. An automatically-activated bar code symbol reading device, wherein the preprogrammed set of operational states include an object detection state of operation, a bar code presence detection state of operation, and a bar code symbol reading state of operation, wherein each of these states of operation are automatically activated in response to the automatic detection of predetermined conditions in the object detection field, bar code symbol detection field and/or bar code reading field of the device.

12. An automatically-activated bar code symbol reading device, wherein the objection detection is carried out using either infrared (IR) signal transmission/receiving technology, or low-power non-visible laser beam signaling technology.

13. An automatically-activated bar code symbol reading device comprising a set of color-encoded light sources provided on the exterior of the system housing for sequentially generating a set of visually-perceptible state indication signals that visually indicate to the user the various states of operation, wherethrough the device automatically passes during each bar code symbol reading cycle.

14. An automatically-activated bar code symbol reading device, wherein the set of color-encoded state indicating light sources on the exterior of the housing sequentially generate a visually-perceptible object detection indication signal when the device is automatically induced into the object detection state of operation, a visually-perceptible bar code symbol presence detection indication signal when the device is automatically induced into its bar code symbol detection state of operation, and a visually-perceptible bar code symbol read indication signal when the device is automatically induced into its bar code symbol reading state of operation.

15. An automatically-activated bar code symbol reading device, wherein the hand-supportable bar code symbol reading device can be used as either a portable hand-supported laser scanner in an automatic hands-on mode of operation having a manually-activated data transmission state of operation, or as a stationary laser projection scanner in an automatic hands-free mode of operation having a automatically-activated data transmission state of operation.

16. An automatically-activated bar code reading device, wherein a support stand is provided for supporting the hand-supportable bar code symbol reading device in its automatic hands-free mode of operation and automatically generating a data transmission control activation signal to enable the automatically-activated data transmission state in this operational mode.

17. An automatically-activated bar code reading device wherein a visible laser light source, scanning element and a plurality of stationary mirrors cooperate to produce a visible omni-directional visible laser scanning pattern having multiple laser scanning lines with substantially uniform spatial and temporal intensity characteristics at a given scanning plane parallel to the scanning window within the working distance of the system..

18. An automatically-activated bar code reading device wherein a visible laser light source, scanning element and a plurality of stationary mirrors cooperate to produce a visible stroboscopically-pulsed omni-directional laser scanning pattern against a single laser scanning line having substantially uniform spatial and temporal intensity characteristics at a given scanning plane parallel to the scanning window within the working distance of the system.

19. An automatically-activated bar code reading device wherein a visible laser light source, scanning element and a plurality of stationary mirrors cooperate to produce a visible stroboscopically-pulsed omni-directional laser scanning pattern against multiple rastered laser scanning lines having substantially uniform spatial and temporal intensity characteristics at a given scanning plane parallel to the scanning window within the working distance of the system..

20. An automatically-activated bar code reading device wherein the pulse frequency and width (e.g. duty cycle) of the visible laser light is dynamically-controlled to selectively enable the laser light source to produce a visible stroboscopically-pulsed omni-directional laser scanning pattern against a single laser scanning line having substantially uniform spatial and temporal intensity characteristics at a given scanning plane parallel to the scanning window within the working distance of the system, only when the light produced therefrom is directed by said scanning element onto the predetermined subset of stationary mirrors, to thereby support the uni-directional bar code reading mode of operation, e.g. during bar code menu reading applications.

21. An automatically-activated bar code reading device that derives timing signals synchronized to a particular interval in the rotation cycle of a rotating light directing element when the rotating light directing element directs light produced from the laser light source onto the predetermined subset of stationary mirrors.

22. An automatically-activated bar code reading device that derives such timing signals from a position sensor integrated into a rotating portion of the rotating light directing element.

23. An automatically-activated bar code reading device that derives such timing signals a position indicating optical element mounted adjacent (or near) the perimeter of one of said stationary mirrors, such that the position indicating optical element is illuminated by light produced from said laser light source when the rotating light directing element reaches a predetermined point in its rotation.